

AGASTHYA OMKUMAR

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OBJECTIVE

Highly skilled ML Engineer with expertise in Machine Learning, Computer Vision and NLP. Leveraging research experience at CAIR-DRDO and advanced training I am now seeking Data Scientist or AI-related roles to drive impactful results in a dynamic organization.

EDUCATION

Masters in Applied Mathematics, Defence Institute of Advanced Technology 2022 - 2024

Relevant Coursework: Advanced Statistical Techniques, Machine Learning, Deep Learning, Computer Vision
CGPA: 8.26

Bachelors in Mechanical Engineering, BNM Institute of Technology, VTU 2017 - 2021

CGPA: 8.34

SKILLS

Technical Skills	Machine Learning, Computer Vision, Image Processing, OCR, NLP, Time Series Image Recognition, Multi-Object Tracking, Spatial Data Analysis GenAI, LLMs, Mathematical Modelling, Azure, AWS, Latex
Programming Languages	Python, Matlab, SQL, R, C#
Libraries / Frameworks	Numpy, Pandas, Matplotlib, Scikit-Learn, OpenCV, Pytorch, Streamlit, ultralytics, TensorFlow, nltk, mmtrack, sqlite3, geopy, geopandas, geographiclib, Keras, fastdtw
OS	Windows, Linux (Ubuntu)
Other Skills	Corporate Communication, Leadership, Event Management, Critical Thinking

EXPERIENCE

Project Trainee Aug 2023 - Mar 2024
CAIR-DRDO Bengaluru, KA

- Conducted Research on UAV based Multi Object Tracking in Maritime Domain for Surveillance and Search & Rescue Operations.
- Developed tracking models for specific use-cases with high accuracy, tackling problems like Occlusion and Re-Identification using Sensor Data and Image Recognition Techniques respectively.
- Developed Data Fusion Models for Visual and Sensor Data to tackle Occlusion and Re-Identification challenges.
- Visualized Model performance and metrics using frameworks like Streamlit.
- Trained Models on Stand alone GPU systems and Edge Computing Technology.

Intern Mar 2021 - Sept 2021
Cognizant Bengaluru, KA

- Underwent .NET Training.
- Up-skilled in Python and SQL.
- Trained in SQL Database Design.

PROJECTS

UAV-based Maritime Multi-Object Tracking. Masters Thesis Project. Conducted research on Multi-Object Tracking methods with a focus on integrating Image Recognition techniques. Performed experiments on various Object Detection models and Object Tracking models such as YOLO, Transformer-based Detectors, Kalman Filter-based Tracking algorithms, and Spatio-Temporal Transformers. Applied Image Recognition techniques to enhance

Object Detection accuracy, particularly in challenging scenarios like Occlusion and Re-Identification. Developed novel Tracking algorithms that utilized AIS Data to improve Maritime Tracking. Additionally, created a Streamlit-based GUI for visualizing model performance and facilitating ready-to-deploy solutions.

Vittiya Anveshak. Built a Fund Trail Analysis tool implemented in web based application using Flask and Machine Learning. Hidden Markov Models were implemented to generate Fund trails on datasets generated using Gen AI (CTGAN). Project presented at **KAVACH**, *Cybersecurity Hackathon* organized by **AICTE, MoE's Innovation Cell, MHA, BPRD, I4C**. Selected among the **Top 5 among 3900** teams nation-wide.

Sign Language Recognition from Videos Developed a Sign Language Recognition Model using a custom LRCN (Long Range Convolutional Network), integrating advanced Image Recognition techniques to effectively recognize and interpret Sign Language gestures. These Image Recognition techniques were crucial in accurately identifying and processing the visual features of each gesture, enabling seamless communication between the hearing-impaired and others. Successfully trained and fine-tuned the model, achieving a high accuracy rate in Sign Language Gesture Recognition.

EDA on IBM HR Employee Attrition Data Conducted HR Analytics Exploratory Data Analysis (EDA) on the IBM HR Employee Attrition Dataset, revealing that job roles, job satisfaction, and compensation significantly impact attrition rates, while factors such as education, experience, job involvement, and work-life balance are closely associated with employee performance, providing actionable insights to inform HR strategies for talent retention, employee satisfaction improvement, and organizational performance optimization.

LEADERSHIP

- Head Volunteer for **International Conference on Data Management, Analytics and Innovation (ICDMAI) 2023**: Led a team of 20+ volunteers to organize the 7th ICDMAI held at DIAT, Pune. Managed smooth functioning of Paper presentations under different sections simultaneously. Coordinated with DIAT Non-Technical Staff and Hostel Staff and facilitated accommodation, food and transport facilities for ICDMAI participants, Chief Guests and other dignitaries.
- Team Lead for team **“CHANAKYA”** for **“KAVACH”**, *Cybersecurity Hackathon*: Managed a Team of 5 and got selected in top 5 of 3900 teams for the Grand Finale conducted in GL Bajaj Institute of Technology, Greater Noida.
- Captain of Chess team in BNMIT Chess Team.

EXTRA-CURRICULAR ACTIVITIES

- Actively contribute and maintain a GitHub profile, testing Machine Learning models and creating tutorial repositories for various applications involving Computer Vision and Deep Learning.
- Actively participate in chess competitions, represented DIAT in West Zonals Chess Competitions and BNM Institute of Technology in VTU South Zonals Chess Competition.
- Founded Robotics Club at BNM Institute of Technology: Conducted workshops and trained new members in Arduino, Raspberry Pi, and basic Internet of Things (IoT) projects.